

Amendment to the Drawing Figures:

FIG. 1 is amended herein to delete reference characters 175, 176, 177, 178, 180, 190, and 194. A Replacement FIG. 1, and an annotated sheet showing the deletions in red, are attached hereto.

FIG. 2A is amended herein to add NASD 245, controller 246, and memory 247. A Replacement FIG. 2A, and an annotated sheet showing the additions in red, are attached hereto.

FIG. 5A is amended herein to delete reference character UCB 510. A Replacement FIG. 5A, and an annotated sheet showing the deletions in red, are attached hereto.

REMARKS

Claims 1-30 are pending in this application. Applicants have amended their claims herein to more clearly define their invention.

Claim 1 is amended herein to recite permitting each host computer assigned to the (i)th host computer group to access said parallel access volume. Support can be found in the Specification on Page 20 at Lines 8-11, and in FIG. 3 at step 390.

Claims 11 and 21 are amended herein to recite that one or more of the logical volumes disposed in the information storage and retrieval system are assigned to one of (N) logical volume groups wherein (N) is greater than or equal to 1. Support can be found in the Specification on Page 19 at Lines 6-14 and in FIG. 3 at step 360. Claims 11 and 21 are further amended herein to recite that each host computer in communication with the information storage and retrieval system is assigned to one of (N) host computer groups. Support can be found in the Specification on Page 18 at Lines 7-22 and in FIG. 3 at steps 330 and 340.

Claims 2, 11, and 21, are amended herein to include the steps 410, 420, 430, 470, 480, 450, and 460, recited in FIG. 4.

Claims 8, 18, and 28, are amended herein to clarify that the request to assign a base logical volume comprises a request to assign to a logical volume group a base logical volume associated with a parallel access volume. Support can be found in the Specification at Page 25 at Lines 7-9.

Claims 9, 19 and 29, are amended herein to clarify that the request to unassign a base logical volume is directed to unassigning from a logical volume group the base logical volume associated with a parallel access volume. Support can be found in the Specification at Page 26

at Lines 21-22.

Claims 10, 20, and 30, are amended herein to clarify that the request to delete a base logical volume comprises a requested to delete a base logical volume associated with a parallel access volume. Support can be found in the Specification at Page 27 at Lines 15-22.

No new matter has been entered. Reexamination and reconsideration of the application, as amended, is respectfully requested.

McKean et al. teach an apparatus and a method to manage multiple host computers. McKean teaches forming a plurality of host computer groups. McKean defines a "logical unit" to mean "the medium used by controller 102 to store and retrieve data respectively to and from the disk drives 106-110." Col. 1/Lines 40-44. McKean teaches a system wherein the "disk drives 106-112 are being operated as a RAID . . ." Col. 2/Lines 50-51. As a result, McKean further teaches use of a total number of disk drives that exceeds the number of host computer groups by 2. In that regard, McKean repeatedly refers host computer groups having identifiers between 2 and N, and disk drives having identifiers between 0 and N.

McKean teaches a system and method wherein each of the host computer groups can write data to, and read data from, each of the logical units. More specifically, McKean et al. teach a controller 128 which includes for each host computer group 2 through N one set of operating requirements for each logical unit 0 through N. Col. 5/Lines 5-8. Step 228 in the method of McKean et al. recited in FIG. 3 provides, *inter alia*, "store, by the controller, one set per target ID per LU." McKean et al. nowhere teach forming (N) host computer groups and (N) logical volume groups, wherein (N) is greater than 1, as recited by Applicants' claims 1, 11, and 21.

Fairchild et al. teach an apparatus and method for optimizing multiple input/output requests directed to a single logical device. [0010] Fairchild et al. further teach an apparatus and method for optimizing multiple input/output requests to a single logical device in a data storage system capable of accommodating multiple concurrent or over-lapped accesses. [0011]. Fairchild et al. nowhere teach forming (N) host computer groups and (N) logical volume groups, wherein (N) is greater than 1, as recited by Applicants' claims 1, 11, and 21.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP 2143.03; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Applicants respectfully submit that McKean nowhere teaches forming (N) host computer groups and (N) logical volume groups, wherein (N) is greater than 1, as recited by Applicants' claims 1, 11, and 21. The method of McKean et al. recited in FIG. 3 does not include such a step.

Applicants respectfully submit that the Examiner incorrectly interprets element 138 of FIG. 2 to comprise a logical volume group. McKean teaches otherwise, "Data storage system 126 includes controller 128, which is coupled across I/O bus 130 to a plurality of disk drives 132-135 in peripheral 138." Col. 4/Lines 54-56. Hence, element 138 comprises a physical enclosure rather than a logical grouping.

Even if element 138 did comprise a logical volume group, then McKean would teach a system comprising at least 4 host computer groups, namely the host computer groups of element 150, but only a single logical volume group, i.e. element 138. In that regard, McKean et al. actually teach away from Applicants' claims 1, 11, and 21.

"A reference may be said to teach away when a person of ordinary skill, upon reading

the reference . . . would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed.Cir. 1994). One of ordinary skill of the art following the teachings of McKean et al. would be motivated to form a plurality of host computer groups and one logical volume group. On the other hand, one of ordinary skill of the art following the teachings of McKean et al. would find no motivation to form (N) host computer groups and (N) logical volume groups, as recited in Applicants’ claims 1, 11, and 21.

Fairchild et al also teach away from Applicants’ claims 1, 11, and 21. One of ordinary skill of the art following the teachings of Fairchild et al. would be motivated to utilize a data storage system which receives multiple input/output requests directed to a single logical device. On the other hand, one of ordinary skill of the art following the teachings of McKean would find no motivation to form (N) host computer groups and (N) logical volume groups, as recited in Applicants’ claims 1, 11, and 21.

Neither McKean et al., nor Fairchild et al., singly or in combination, teach a data storage system comprising (N) host computer groups and (N) logical volume groups, as recited in Applicants’ claims 1, 11, and 21, as amended herein. This being the case, Applicants respectfully submit that claims 1, 11, and 21, as amended herein, are patentable over McKean in view of Fairchild.

Claims 2, 3, 4, 8, 9, and 10, depend from claim 1. Under 35 U.S.C. § 112, fourth paragraph, “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.” “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” MPEP 2143.03; *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988). Applicants respectfully submit that claims 2,

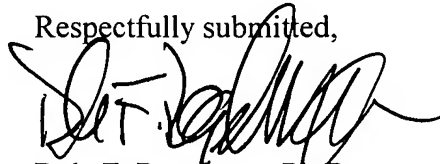
3, 4, 8, 9, and 10, as amended herein, are non-obvious over McKean in view of Fairchild.

Claims 12, 13, 14, 18, 19, and 20, depend from claim 11. Under 35 U.S.C. § 112, fourth paragraph, “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.” “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” MPEP 2143.03; *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988). Applicants respectfully submit that claims 12, 13, 14, 18, 19, and 20, as amended herein, are non-obvious over McKean in view of Fairchild.

Claims 22, 23, 24, 28, 29, and 30, depend from claim 21. Under 35 U.S.C. § 112, fourth paragraph, “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.” “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” MPEP 2143.03; *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988). Applicants respectfully submit that claims 22, 23, 24, 28, 29, and 30, as amended herein, are non-obvious over McKean in view of Fairchild.

Having dealt with all of the outstanding objections and/or rejections of the claims, Applicants submit that the application as amended is in condition for allowance, and an allowance at an early date is respectfully solicited. In the event there are any fee deficiencies or additional fees are payable, please charge them, or credit an overpayment, to our Deposit Account No. 502262.

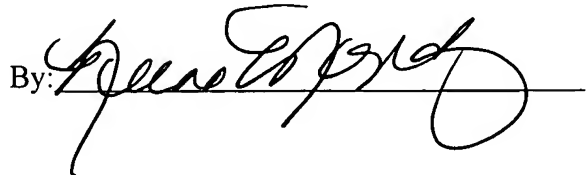
Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on March 13, 2006, at Tucson, AZ.

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FIG. 1

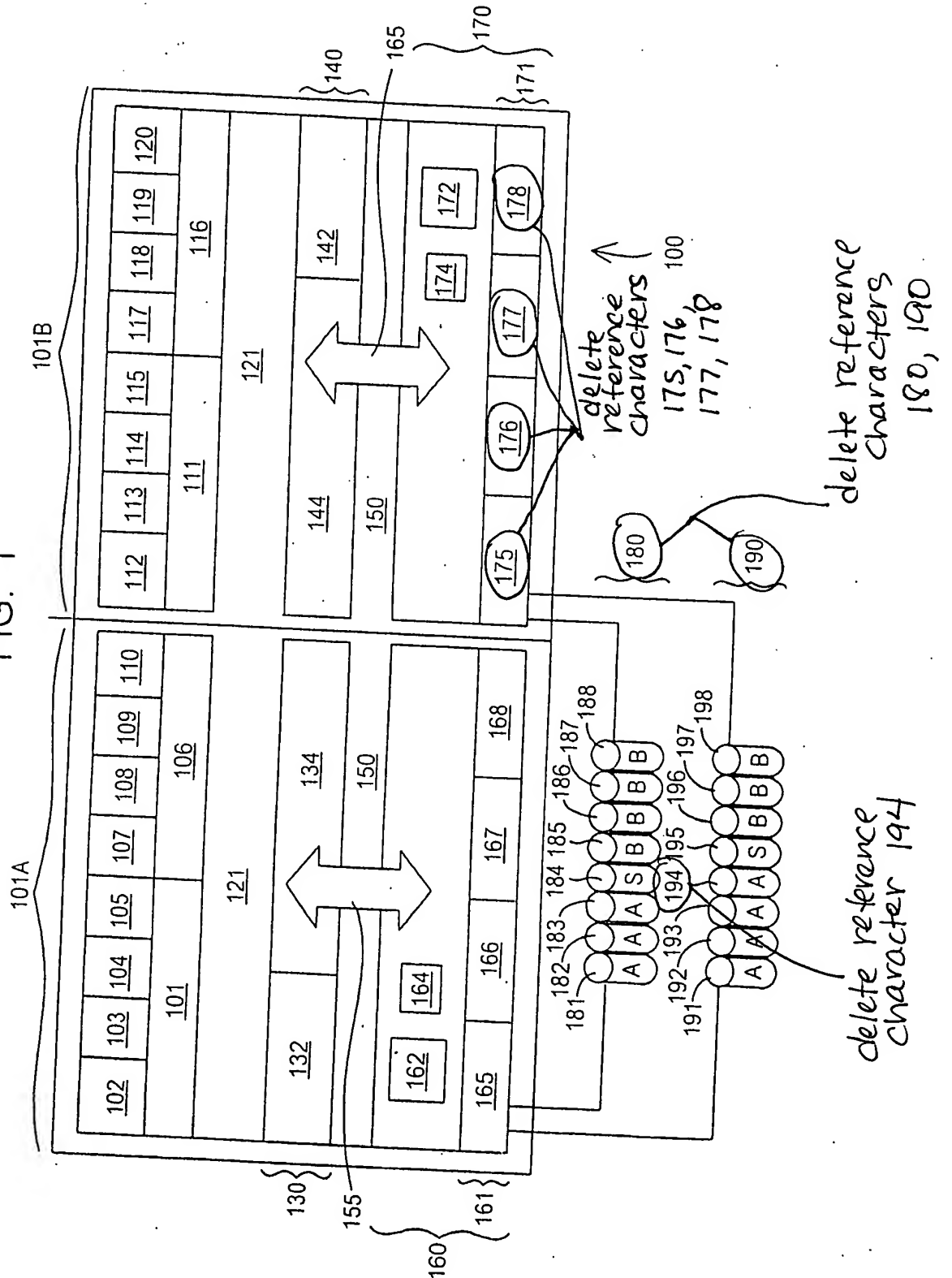




FIG. 2A

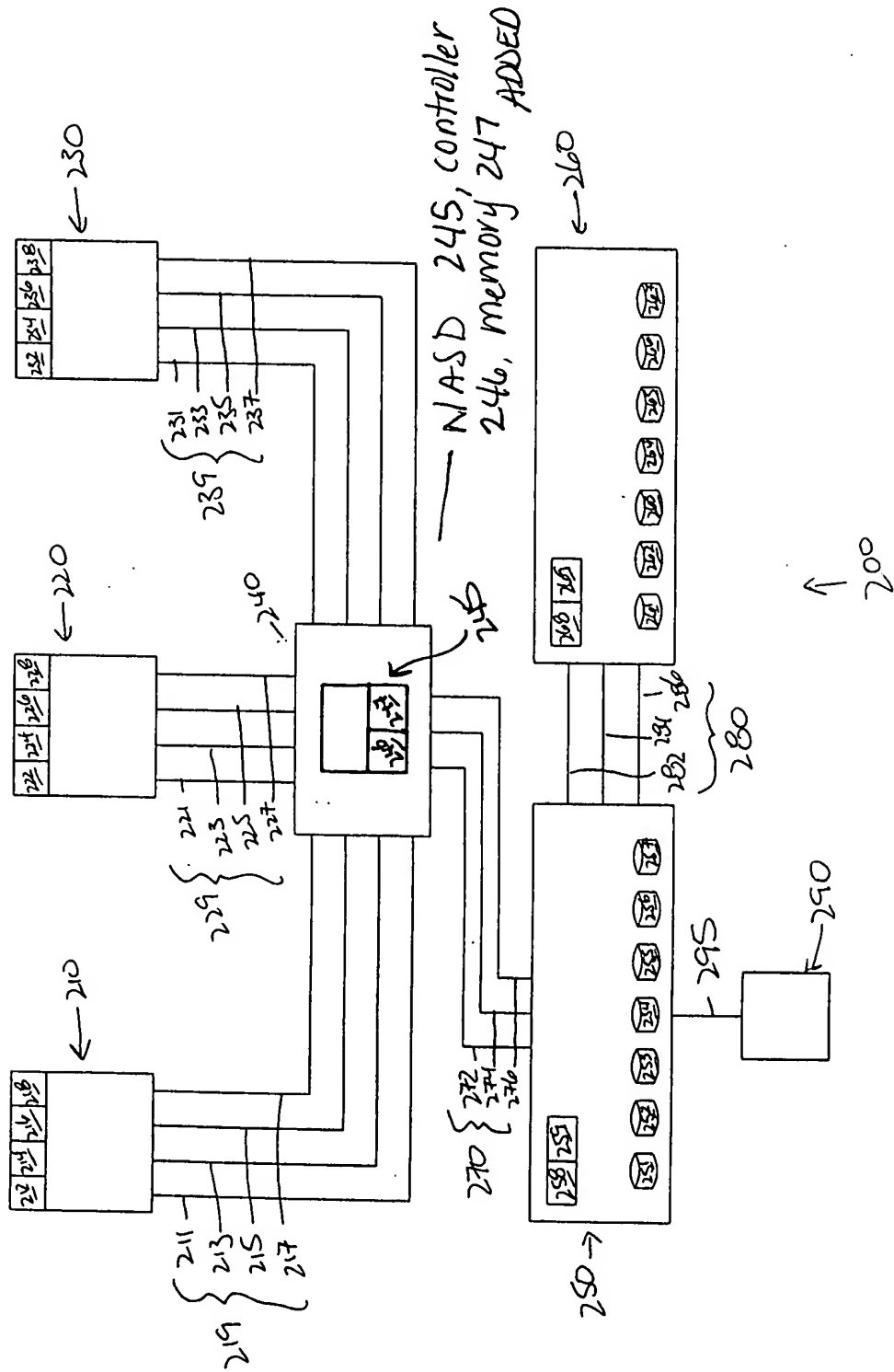




FIG. 5A

